

GenCore version 5.1.6  
Copyright (c) 1993 - 2003 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: June 25, 2003, 14:40:41 ; Search time 12.7349 Seconds

(Without alignments)  
837.928 Million cell updates/sec

Title: US-09-622-613b-21

Perfect score: 605  
Sequence: 1 MONNATFOQKHIIIMPICN.....ICVKCENQYVPHFAGIGRCP 111

Scoring table: BLOSUM62  
Gapop 10.0, Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database:

PIR-73: \*  
1: pirl: \*  
2: pirl: \*  
3: pirl: \*  
4: pirl: \*

Pred. Nc. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB, ID	Description
1	582.5	96.3	111	2, A27121	ribonuclease-relat
2	451	74.5	111	1, JX0120	pancreatic ribonuc
3	370	61.2	111	2, JX0085	pancreatic ribonuc
4	270.5	44.7	104	2, A39035	ribonuclease-relat
5	136.5	22.6	145	1, A35932	angiotensin precurs
6	131.5	21.7	124	1, NRMH	pancreatic ribonuc
7	129.5	21.4	124	1, NRP	pancreatic ribonuc
8	129.5	21.4	167	2, S20066	pancreatic-type ri
9	127.5	21.1	119	2, S41111	pancreatic ribonuc
10	119	19.7	122	1, NRMH	pancreatic ribonuc
11	118.5	19.6	123	1, A43825	angiotensin - pig
12	118.5	19.6	124	1, NRP	pancreatic ribonuc
13	115.5	19.3	128	1, NRCU	pancreatic ribonuc
14	115.5	19.3	149	1, NRM	pancreatic ribonuc
15	114.5	18.9	123	1, NRCB	pancreatic ribonuc
16	114	18.8	125	1, A32474	pancreatic ribonuc
17	113.5	18.8	124	1, NRCM	angiotensin [valida
18	113.5	18.8	124	1, NRCM	pancreatic ribonuc
19	113.5	18.8	124	1, NRCB	pancreatic ribonuc
20	113.5	18.8	128	1, NRCB	pancreatic ribonuc
21	113	18.7	147	1, NRMH	pancreatic ribonuc
22	112.5	18.6	128	1, NRMH	angiotensin precurs
23	110.5	18.3	124	2, S0849	pancreatic ribonuc
24	109.5	18.1	124	1, NRDEN	ribonuclease - dom
25	109	18.0	125	1, B43825	pancreatic ribonuc
26	108.5	17.9	124	1, NRGF	angiotensin - rabbi
27	108.5	17.9	124	1, NRDEN	pancreatic ribonuc
28	108.5	17.9	130	2, S22608	pancreatic ribonuc
29	107.5	17.8	124	1, NRMH	pancreatic ribonuc

30	107.5	17.8	158	2	161900	eosinophil-derived
31	106.5	17.6	124	1	NRCB	pancreatic ribonuc
32	106.5	17.6	124	1	NRCM	pancreatic ribonuc
33	106.5	17.6	124	2	S07141	pancreatic ribonuc
34	106.5	17.6	124	2	JC3560	pancreatic ribonuc
35	106.5	17.6	150	1	NRCB	pancreatic ribonuc
36	105.5	17.4	119	2	JX0115	pancreatic ribonuc
37	105.5	17.4	124	1	NRS	pancreatic ribonuc
38	105.5	17.4	152	1	NRR	pancreatic ribonuc
39	104.5	17.3	124	1	NRCB	pancreatic ribonuc
40	103.5	17.1	125	4	A47498	pancreatic ribonuc
41	103.5	17.1	150	1	NRCB	seminal ribonuclea
42	102.5	16.9	124	1	NRCB	pancreatic ribonuc
43	101	16.7	125	2	S04503	pancreatic ribonuc
44	100.5	16.6	124	1	NRCM	pancreatic ribonuc
45	100.5	16.6	124	1	NRCB	pancreatic ribonuc

## ALIGNMENTS

### RESULT 1

A27121  
ribonuclease-related stalic acid-binding lectin - bullfrog  
C:Species: Rana catesbeiana (bullfrog)  
C:Date: 19-Nov-1988 #sequence\_revision 19-Nov-1988 #text\_change 30-Jun-1993  
C:Accession: A27121  
R:Titani, K., Takio, K., Kuwada, M., Nitta, K., Sakakibara, F., Kawachi, H., Takayan  
Biochemistry 26, 2189-2194, 1987  
A:Title: Amino acid sequence of stalic acid-binding lectin from frog (Rana catesbeian  
A:Reference number: A27121; MUID:8729649; PMID:3304421  
A:Accession: A27121  
A:Molecule type: protein  
A:Residues: 1-111 <RT>  
C:Superfamily: pancreatic ribonuclease  
C:Keywords: lectin

### Query Match

Best Local Similarity 96.3%; Score 582.5; DB 2; Length 111;  
Matches 107; Conservative 3; Mismatches 0; Indels 1; Gaps 1;

OY 2 QNNATFOQKHIIIMPICNCTIIDNNIYIVGGCKRVNPFILISSATVKAICGVNLNV 60  
DB 1 ENNATFOQKHIIIMPICNCTIIDNNIYIVGGCKRVNPFILISSATVKAICGVNLNV 60  
OY 61 LSTTRFOLNCTRTSIRPCPYSSRTETNYICVCKENQYVPHFAGIGRCP 111  
DB 61 LSTTRFOLNCTRTSIRPCPYSSRTETNYICVCKENQYVPHFAGIGRCP 111

### RESULT 2

JX0120  
ribonuclease-related stalic acid-binding lectin - Japanese frog  
C:Species: Rana japonica (Japanese frog)  
C:Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
C:Accession: JX0120  
R:Kamaya, Y., Oyama, F., Oyama, R., Sakakibara, F., Nitta, K., Kawachi, H., Takayana  
J. Biochem. 108, 139-145, 1990  
A:Title: Amino acid sequence of a lectin from Japanese frog (Rana japonica) eggs.  
A:Reference number: JX0120; MUID:91035319; PMID:2229005  
A:Accession: JX0120  
A:Molecule type: protein  
A:Residues: 1-111 <RAM>

A:Experimental source: egg  
C:Superfamily: pancreatic ribonuclease  
C:Keywords: lectin; pyroglyutamic acid  
F:1/Modified site: pyroglyutamic acid (Glu) #status experimental  
F:19-72,34-82,52-97,94-111/Disulfide bonds: #status experimental

Query Match 74.5%; Score 451; DB 1; Length 111;  
Best Local Similarity 77.5%; Pred. NO. 1e-37;  
Matches 86; Conservative 8; Mismatches 15; Indels 2; Gaps 2;



NRRC  
pancreatic ribonuclease (EC 3.1.27.5) - pig  
N.Alternate names: RNase A  
C.Species: Sus scrofa domestica (domestic pig)  
C.Date: 24-Apr-1984 #sequence\_revision 24-Jun-1994  
C.Accession: A92071; A91391; A00815  
R.Jackson, R.L.; Hirs, C.H.W.  
J.Biol. Chem. 245, 637-653, 1970  
A.Title: The primary structure of porcine pancreatic ribonuclease. II. The amino acid sequence of the protein.  
A.Reference number: A92071; MUID:70104197; PMID:5460946  
A.Accession: A92071  
A.Molecule type: protein  
A.Residues: 1,'Q','3-124'<IAC>  
R.Wietenga, R.K., Huizinga, J.D.; Gaastra, W.; Wellings, G.W.; Beintema, J.J.  
FEBS Lett. 31, 181-185, 1973  
A>Title: Affinity chromatography of porcine pancreatic ribonuclease and reinvestigation of its active site.  
A.Reference number: A91391  
A.Accession: A91391  
A.Molecule type: protein  
A.Residues: 1-124<IID>  
R.Pheasant, J.U.; Hirs, C.H.W.  
J.Biol. Chem. 245, 654-661, 1970  
A>Title: The primary structure of porcine pancreatic ribonuclease. III. The disulfide bonds.  
A.Reference number: A92072; MUID:70104198; PMID:4904878  
A.Contents: annotation: disulfide bonds  
C.Superfamily: pancreatic ribonuclease  
C.Keywords: glycoprotein; hydrolase; nucleic acid digestion; pancreas  
F.12,41,119/Active site: His, Lys, His #status predicted  
F.12,34,76/Binding site: carbohydrate (Asn) (covalent) #status experimental  
F.26-84,40-95,58-110,65-72/Disulfide bonds: #status experimental

Query Match 21.4% Score 129.5; DB 1; Length 124;  
Best Local Similarity 30.7%; Pred. No. 7.6e-06;  
Matches 35; Conservative 20; Mismatches 42; Indels 17; Gaps 6;

OY 7 FOOKH-----INTPICTILDNNIYVGCKRVNFTFISSAFVKAICTGV-INLN 59  
||::| |::| |::| |::| |::| |::| |::| |::| |::| |::| |::| |::| |::|  
DB 8 FORQHMDPSSSSNSSNYCNLMSRR-NMTOGRCKPVNTFHESLADVOAVCSQINWCK 66  
OY 60 VLSIRFOQLT-----CFRTSLPRP-CPYSSRTETNYICVCENQ--YPHF 104  
| |::| |::| |::| |::| |::| |::| |::| |::| |::| |::| |::| |::| |::|  
DB 67 NGOTNCYOESTMTHTDCROTGSKYPNCAYKASGEQAHIIVACGNPPVPVPHF 120

RESULT 8  
S20066  
pancreatic-type ribonuclease (EC 3.1.27.5) Brb precursor, brain - bovine  
C.Species: Bos primigenius taurus (cattle)  
C.Date: 22-Nov-1993 #sequence\_revision 12-May-1995 #text\_change 22-Jun-1999  
C.Accession: S20066; JX0056  
R.Sasso, M.P.; Carsana, A.; Confalone, E.; Cosi, C.; Sorrentino, S.; Viola, M.; Palmieri,  
Nucleic Acids Res. 19, 6469-6474, 1991  
A>Title: Molecular cloning of the gene encoding the bovine brain ribonuclease and its expression in Escherichia coli.  
A.Reference number: S20066; MUID:92093604; PMID:1754384  
A.Accession: S20066  
A.Molecule type: DNA  
A.Residues: 1-167<SAS>  
A.Cross-references: EMBL:X59767; NID:9150; PIDN:CAA42439.1; PID:g151  
R.Watanabe, H.; Kato, H.; Ishii, M.; Komoda, Y.; Sanda, A.; Takizawa, Y.; Ohgi, K.; Ito,  
J. Biochem. 104, 939-945, 1988  
A>Title: Primary structure of a ribonuclease from bovine brain.  
A.Reference number: JX0056; MUID:89214015; PMID:3243767  
A.Accession: JX0056  
A.Molecule type: protein  
A.Residues: 27-154,'S','156-166'<MAT>  
A.Experimental source: brain  
C.Superfamily: pancreatic ribonuclease  
C.Keywords: glycoprotein; hydrolase  
F.38,67,145/Active site: His, Lys, His #status predicted  
F.52-110,66-121,84-136,91-98/Disulfide bonds: #status predicted  
F.88/Binding site: carbohydrate (Asn) (covalent) #status experimental  
F.155/Binding site: carbohydrate (Thr) (covalent) #status experimental  
F.159/Binding site: carbohydrate (Ser) (covalent) #status experimental

```
Query Match      21.4%, Score 129.5; DB 2; Length 167  
Best Local Similarity    30.6%; Pred. No. 1e-05;  
Matches         37; Conservative   18; Mismatches   43; Indels    23; Gaps       7;  
  
QY          5 ATFOOKHI-----INPILICNTILDNNIIVYGOCGRVMTFISSATVAKTCGVNL 58  
| : :: |  
DB          32 AKFRQHMDSSSSSNPNVCNQMKRR-RTHGRCAPVTVPHEISLDVKAAVS---QX 87  
| : : : : :  
QY          59 NVL-----STTRPOLNCTCRISTIRAP-CPIYSRRETNICYKC-NQ-PVHRA 105  
| : : : : :  
DB          88 NITCKNGHPNCOSKRSTMSTIPDCRETGSXYPCAVTKSOKORYTIVACGNPYVEHFED 147.  
| : : : : :  
QY          106 G 106  
| : : : : :  
DB          148 G 148
```

RESULT 9  
SA1111

Pancreatic ribonuclease - common iguana  
C.Species: Iguana iguana (common iguana)  
C.Date: 19-Mar-1997 #sequence\_revision 19-Mar-1997 #text\_change 21-Aug-1998  
C.Accession: S41111  
R.Zhao, W.; Beintema, J.J.; Hofsteenge, J.  
Eur. J. Biochem. 219, 641-646, 1994  
A.Title: The amino acid sequence of iguana (Iguana iguana) pancreatic ribonuclease  
A.Reference number: SA1111; MUID: 94138745; PMID: 8307028  
A.Accession: S41111  
A.Status: Preliminary  
Molecule type: protein  
A.Residues: 1-119 <ZHA>

C.Superfamily: pancreatic ribonuclease

Query Match 21.1%, Score 127.5; DB 2; Length 119;  
Best Local Similarity 29.6%; Pred. No. 1.e-05;  
Matches 34; Conservative 17; Mismatches 51; Indels 13; Gaps 4;  
  
QY 2 ONMATFPOKH-----INTPICNTILDNNIIVYGOCGRVMTFISSATTVAKAIC-- 52  
| : : : |  
DB 1 QDMSFKQKHIDYEFTSANPAVCDDLMOQR-NLNPTKKCTRNFPHASPSLIQOVCS 59  
| : : : : :  
QY 53 --TGVINLVLTSTRFOLNCTRTSIT-PRCPYSSRTETNYICVGCENQPVHF 104  
| : : : : :  
DB 60 GTHYEDNLVDNSNESFDLTDCKNVGTAAPSCKRYGTPTGRKRRIKRIACCENNQPVF 114  
| : : : : :

RESULT 10  
NRKG  
pancreatic ribonuclease (EC 3.1.27.5) - red kangaroo  
N.Alternate names: RNase 1; RNase A  
C.Species: Macropus rufus, Megaloptila rufa (red kangaroo)  
C.Date: 30-Nov-1980 #sequence\_revision 30-Nov-1980 #text\_change 04-Oct-1996  
C.Accession: A00833  
R.Gaalstra, W.; Welling, G.W.; Beinlema, J.J.  
Eur. J. Biochem. 86, 209-217, 1978  
A>Title: The amino-acid sequence of kangaroo pancreatic ribonuclease.  
A.Reference number: A00833; MUID: 78190621; PMID: 658039  
A.Accession: A00833  
Molecule type: protein  
A.Residues: 1-122 <GA>  
C.Superfamily: pancreatic ribonuclease  
C.Keywords: glycoprotein; hydrolase; nucleic acid digestion; pancreas  
F.II.40.117/Active site: His, Lys, His #status predicted  
F.25-83.39-94/57-109.64-71/Disulfide bonds: #status predicted  
F.61/Binding site: carbohydrate (Asn) (covalent) #status absent

Query Match 19.7%, Score 119; DB 1; Length 122;  
Best Local Similarity 29.8%; Pred. No. 8.2e-05;  
Matches 34; Conservative 17; Mismatches 45; Indels 18; Gaps 6;  
  
QY 7 FOOKHI-----IMPILICNTILDNNIIVYGOCGRVNTPFISSATTVAKIC----- 52  
| : : : |  
:: || :: | :|| :|||| | :|||

Db 7 FORQMDHEHSTASSNNCLMMKAR-DMTSGRCRPLNTFHEPKSVDAVCHOENWTK 65  
 QY 53 TGVNLNLVSTRFOLNCTRTSIPRP-CPYSSRFTETWICVKENOV-PVHF 104  
 Db 66 NGRTNC-YKSNRSLITNCRGTGASKYPRNCQYETSLNKLQITVACEGQYVPVHF 118

RESULT 11  
 A43825  
 angiotensin - pig  
 C:Species: Sus scrofa domestica (domestic pig)  
 C:Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
 C:Accession: S29834; A43825  
 R:Bond, M.D.; Striydom, D.J.; Vallee, B.L.  
 Biochim. Biophys. Acta 1162, 177-186, 1993  
 A:Title: Characterization and sequencing of rabbit, pig and mouse angiotensins: disacetime  
 A:Reference number: S29833; MUID:93192291; PMID:8448182  
 A:Accession: S29834  
 A:Status: preliminary  
 A:Molecule type: Protein  
 A:Residues: 1-123 <BON>  
 A>Note: this sequence was submitted to the Protein Sequence Database, December 1992  
 C:Superfamily: pancreatic ribonuclease

Query Match 19.6%; Score 118.5; DB 1; Length 123;  
 Best Local Similarity 39.5%; Pred. No. 9.3e-05;  
 Matches 30; Conservative 6; Mismatches 35; Indels 5; Gaps 2;

QY 34 CKRVNFTFISSATYKAICTG---VINLNLVSTRFOLNCTRTSIPRP-PCPSSRTE 88  
 Db 39 CKRVNFTFHGRNDIKAIKCNKNGEPYNNFRSRKSPFOITCKHKGGSNRPPCGYRATAG 98

QY 89 TNYICVKENOVVPHF 104  
 Db 99 FRTIYVACENGLPVHF 114

RESULT 12  
 NRPRI  
 pancreatic ribonuclease (EC 3.1.27.5) - pronghorn (tentative sequence)  
 N:Alternate names: RNase 1; RNase A  
 C:Species: Antilocapra americana (pronghorn)  
 C:Date: 28-Feb-1981 #sequence\_revision 28-Feb-1981 #text\_change 31-Mar-2000  
 C:Accession: A00813  
 R:Beintema, J.J.; Gaastra, W.; Munnikama, J.  
 J. Mol. Evol. 13, 305-316, 1979  
 A:Title: Primary structure of pronghorn pancreatic ribonuclease: close relationship betw  
 A:Reference number: A00813; MUID:80075014; PMID:513141  
 A:Accession: A00813  
 A:Molecule type: Protein  
 A:Residues: 1-124 <BEI>  
 C:Superfamily: pancreatic ribonuclease  
 C:Keywords: glycoprotein; hydrolase; nucleic acid digestion; pancreas  
 F:12.41.119/Active site: His, Lys, His #status predicted  
 F:26-84.40-95.58-110.65-72/Disulfide bonds: #status predicted  
 F:34/Binding site: carbohydrate (Asn) (covalent) (partial) #status experimental

Query Match 19.6%; Score 118.5; DB 1; Length 124;  
 Best Local Similarity 29.9%; Pred. No. 9.4e-05;  
 Matches 35; Conservative 19; Mismatches 44; Indels 19; Gaps 7;

QY 5 ATFOAKHITNP-----ICNTLLDNNIYVGGCKRVNFTFISSATYKAICT----- 53  
 Db 6 AKFEROHIDSNPSSVSSNNYCNOMMKSR-NLTQGRCKPVNPFVHESLADVOVCSOKNVA 64

QY 54 ---GVNLNLVSTRFOLNCTRTSIPRP-CPISSRFTETWICVKE-NQY-PVHF 104  
 Db 65 CKNGQTCN-VQSYSTMSITDCEGTGSSKYPKCAVKTQAKKHITVACEGNDYVPVHY 120

RESULT 13  
 NRCU  
 pancreatic ribonuclease (EC 3.1.27.5) - nutria (tentative sequence)  
 Matches 35; Conservative 17; Mismatches 42; Indels 23; Gaps 7;

N:Alternate names: RNase 1; RNase A  
 C:Species: Myocastor coypus (nutria, coypu)  
 C:Date: 24-Apr-1984 #sequence\_revision 30-Sep-1988 #text\_change 31-Mar-2000  
 C:Accession: A00822  
 R:van den Berg, A.; van den Hende-Timmer, L.; Beintema, J.J.  
 Biochim. Biophys. Acta 453, 400-409, 1976  
 A:Title: Isolation, properties and primary structure of coypu and chinchilla pancreat  
 A:Reference number: A00612; MUID:77065676; PMID:998996  
 A:Accession: A00822  
 A:Molecule type: Protein  
 A:Residues: 1-128 <VAN>  
 C:Superfamily: pancreatic ribonuclease  
 C:Keywords: glycoprotein; hydrolase; nucleic acid digestion; pancreas  
 F:12.41.119/Active site: His, Lys, His #status predicted  
 F:26-84.40-95.58-110.65-72/Disulfide bonds: #status predicted  
 F:34/Binding site: carbohydrate (Asn) (covalent) #status experimental

Query Match 19.3%; Score 116.5; DB 1; Length 128;  
 Best Local Similarity 30.8%; Pred. No. 0.00015;  
 Matches 36; Conservative 16; Mismatches 42; Indels 23; Gaps 7;

QY 7 FOQKH-----INPITCNITLNNIYVGGCKRVNFTFISSATYKAICTVINLV 60  
 Db 8 FERQMDSRGSPSTPNPNYCNEMMKSR-NMTQGRCKPVNPFVHESLADVOVAVC---FOKNV 63

QY 61 L-----STRFOLNCTRTSIPRP-CPYSSRFTETWICVKE-NQY-PVHF 104  
 Db 64 LCKNQTCYOSNSNMHITDCRVTSNSDYPMCSTRTSOEKSIVVACGNDYVPVHF 120

RESULT 14  
 NRM5  
 pancreatic ribonuclease (EC 3.1.27.5) precursor - mouse  
 N:Alternate names: RNase 1; RNase A  
 C:Species: Mus musculus (house mouse)  
 C:Date: 30-Nov-1980 #sequence\_revision 13-Mar-1997 #text\_change 18-Jun-1999  
 C:Accession: A34090; S22598; A00830  
 R:Schueller, C.; Nijssen, H.M.J.; Kok, R.; Beintema, J.J.  
 Mol. Biol. Evol. 7, 29-44, 1990  
 A:Title: Evolution of nucleic acids coding for ribonucleases: the mRNA sequence of mo  
 A:Reference number: A34090; MUID:90136034; PMID:2299980  
 A:Accession: A34090  
 A:Molecule type: Preliminary  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-149 <SCH>  
 A:Cross-references: GB:M27814; MID:g200762; PID:AAAA0060.1; PID:g200763  
 R:Samuelson, L.C.; Webauer, K.; Howard, G.; Schmidt, R.W.; Koepflin, D.; Meisler, M.H.  
 Nucleic Acids Res. 19, 6935-6941, 1991  
 A:Title: Isolation of the murine ribonuclease gene Rib-1: structure and tissue specif.  
 A:Reference number: S22598; MUID:92107684; PMID:1840677  
 A:Accession: S22598  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-149 <SAN>  
 A:Cross-references: EMBL:X60103; MID:g53981; PID:CAA42697.1; PID:g53982  
 R:Rienstra, J.A.; Beintema, J.J.  
 Eur. J. Biochem. 98, 399-408, 1979  
 A:Title: The amino acid sequence of mouse pancreatic ribonuclease.  
 A:Reference number: A00830; MUID:80024269; PMID:556267  
 A:Accession: A00830  
 A:Molecule type: Protein  
 A:Residues: 26-149 <LEN>  
 C:Superfamily: pancreatic ribonuclease  
 C:Keywords: glycoprotein; hydrolase; nucleic acid digestion; pancreas  
 F:12.45/Domain: signal sequence #status predicted <SIG>  
 F:26-149/Product: pancreatic ribonuclease #status predicted <MAT>  
 F:37.66.144/Active site: His, Lys, His #status predicted  
 F:51.109.65-120.83-135.90-97/Disulfide bonds: #status predicted  
 F:62.87/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 19.3%; Score 116.5; DB 1; Length 149;  
 Best Local Similarity 29.9%; Pred. No. 0.00018;  
 Matches 35; Conservative 17; Mismatches 42; Indels 23; Gaps 7;

RESULT 15  
NRGPB

Query Match

[illegible]

Search completed: June 25, 2003, 14:58:06  
Job time : 13.7349 secs

